TMDL IMPLEMENTATION PLAN
SATILLA RIVER BASIN
Overview of Little Satilla River Watershed Plan

The Little Satilla River watershed (HUC10 #0307020205) is located in the Satilla River basin in Southeast Georgia's Brantley, Pierce, and Wayne Counties. The local governments involved in improving the Little Satilla River watershed are the cities of Offerman, Patterson, and Screven and the counties of Brantley, Pierce, and Wayne. Also involved in the effort are the Southeast Georgia Regional Development Center (SEGa RDC) in Waycross and the Georgia Department of Natural Resources' Environmental Protection Division (GADNR-EPD).

Having been determined to be an impaired water body by the State of Georgia, Little Satilla River from Big Satilla Creek to Sixty Foot Branch is classified as *partially supporting* its designation as fishing water and has an impacted area of ten miles. The Total Maximum Daily Load (TMDL) Implementation Plan for the Little Satilla River watershed is a collaborative effort of the GADNR-EPD and the SEGa RDC. A TMDL is the calculation of the maximum amount of a particular pollutant that a water body, river, or stream can receive and still be safe, healthy, and meet Georgia water quality standards.

According to the Little Satilla River Watershed Total Maximum Daily Load (TMDL) Implementation Plan, the water body suffers from two forms of impairments, Fecal Coliform (FC) and Dissolved Oxygen (DO). To meet current water quality standards, the TMDL Implementation Plan notes that a 20% reduction in nonpoint source fecal loads is necessary in the Little Satilla River watershed. To address the DO in Little Satilla River, the TMDL Implementation Plan suggests a 12% load reduction resulting in a decrease of total organic carbon, total nitrogen, and total phosphorus.

Sources of Fecal Coliform in Little Satilla River

The fecal coliform (FC) in the Little Satilla River watershed can be attributed to both point and nonpoint sources. There is one permitted NPDES discharge of FC into Little Satilla River; it is the City of Patterson Water Reclamation Center (NPDES GA0037206).

As for the nonpoint sources of FC, wildlife excrement, farm animal waste, and overflowing septic systems and leaking drain fields are contributing to the FC contamination.

The aforementioned sources are contributed to dissolved oxygen (DO) as well.

Contributors to Impaired Dissolved Oxygen in Little Satilla River

There are numerous nonpoint sources of oxygen demanding substances in the Little Satilla River watershed. These sources surface storm runoff of chemicals and fertilizers from agricultural areas. Also, storm water runoff from industry, automotive care products, and organic material from lawns and forestry operations not following best management practices are all contributing to the DO impairment in Little Satilla River.

In addition to the aforementioned sources, many Southeast Georgia streams, including Little Satilla River, are slow-flowing, "blackwater" bodies. The dark water coloration is due to adjacent wetland areas having organically rich bottom sediments that flow to the stream, as well as leaf litterfall. These factors also have an effect on DO.

Developing the Plan and Stakeholder Involvement

The SEGaRDC has worked closely with GADNR-EPD to develop the TMDL Implementation Plan for the Little Satilla River watershed. Each agency has been diligent in making sure that the strategy includes an action plan, education/outreach activities, stakeholders, pollutant sources, and potential funding resources. Stakeholders, including local government officials, landowners, industrial representatives and interest groups, have played a vital role in the plan's preparation. In fact, needed input was received during a public meeting on October 31, 2002. Stakeholders offer valuable information and data regarding their community and the impaired water bodies and can provide insight and/or implement management measures.

TMDL IMPLEMENTATION PLAN
SATILLA RIVER BASIN
Overview of Little Satilla River Watershed Plan

Monitoring Plan

The monitoring plan will determine the effectiveness of the target TMDL and the management measures being implemented to meet water quality standards. Water quality testing is scheduled to begin in 2004. A voluntary septic system inspection program to encourage routine maintenance of septic systems is proposed to begin in December 2005.

Management Practices

The Implementation Plan lists management measures that have been or will be implemented to achieve water quality standards and the load reductions established in the TMDL. The management measures, including regulatory or voluntary actions or other controls by governments or individuals, specifically apply to the Fecal Coliform and Dissolved Oxygen in the Little Satilla River watershed. The following management practices are included in the TMDL Implementation Plan:

- Septic tank management
- Forestry water quality program
- Agricultural and forestry best management practices
- Nutrient management program
- Automotive product care disposal and management program
- Lawn and garden poison care disposal and management care program

Projected Attainment Date

The projected date to attain and maintain water quality standards in the Little Satilla River watershed is 2012, which is within 10 years of the acceptance of the TMDL Implementation Plan by the Environmental Protection Division.

Conclusion

TMDL Implementation Plans are platforms for establishing a course of actions to restore the quality of impaired water bodies in a watershed. They are intended as a continuing process that may be revised as new conditions and information warrant. Procedures will be developed to track and evaluate the implementation of the management practices and activities identified in the plans. Once restored, appropriate management practices and activities will be continued to maintain the water bodies. Through this intergovernmental partnership and the collaboration with the private stakeholders, the Little Satilla River watershed TMDL Implementation Plan is sure to succeed.

STATE OF GEORGIA

TMDL IMPLEMENTATION PLAN
WATERSHED APPROACH
SATILLA RIVER BASIN

Local Watershed Governments

SOUTHEAST GEORGIA RDC
Pierce County
Brantley County
City of Patterson
City of Offerman

TMDL Implementation Plans are platforms for establishing a course of action to restore the quality of impaired water bodies in a watershed. They are intended as a continuing process that may be revised as new conditions and information warrant. Procedures will be developed to track and evaluate the implementation of the management practices and activities identified in the plans. Once restored, appropriate management practices and activities will be continued to maintain the water bodies. **With input from appropriate stakeholder groups, a TMDL Implementation Plan has been developed for a cluster of impaired waterbodies and the corresponding pollutants.** The impaired streams are located in the same sub-basin identified by a HUC10 code (Figure 1).

This Implementation Plan addresses an action plan, education/outreach activities, stakeholders, pollutant sources, and potential funding resources affecting the watershed. In addition, the Plan describes (a) regulatory and voluntary practices/control actions (*management measures*) to reduce target pollutants, (b) milestone schedules to show the development of the management measures (*measurable milestones*), (c) a monitoring plan to determine the efficiency of the management measures and measurable milestones, and (d) criteria to determine whether substantial progress is being made towards reducing pollutants in impaired waterbodies. The overall goal of the Plan is to define a set of actions that will help achieve water quality standards in the state of Georgia. Following this section is information regarding individual impaired streams.

Little Satilla River Watershed
HUC10 #0307020205

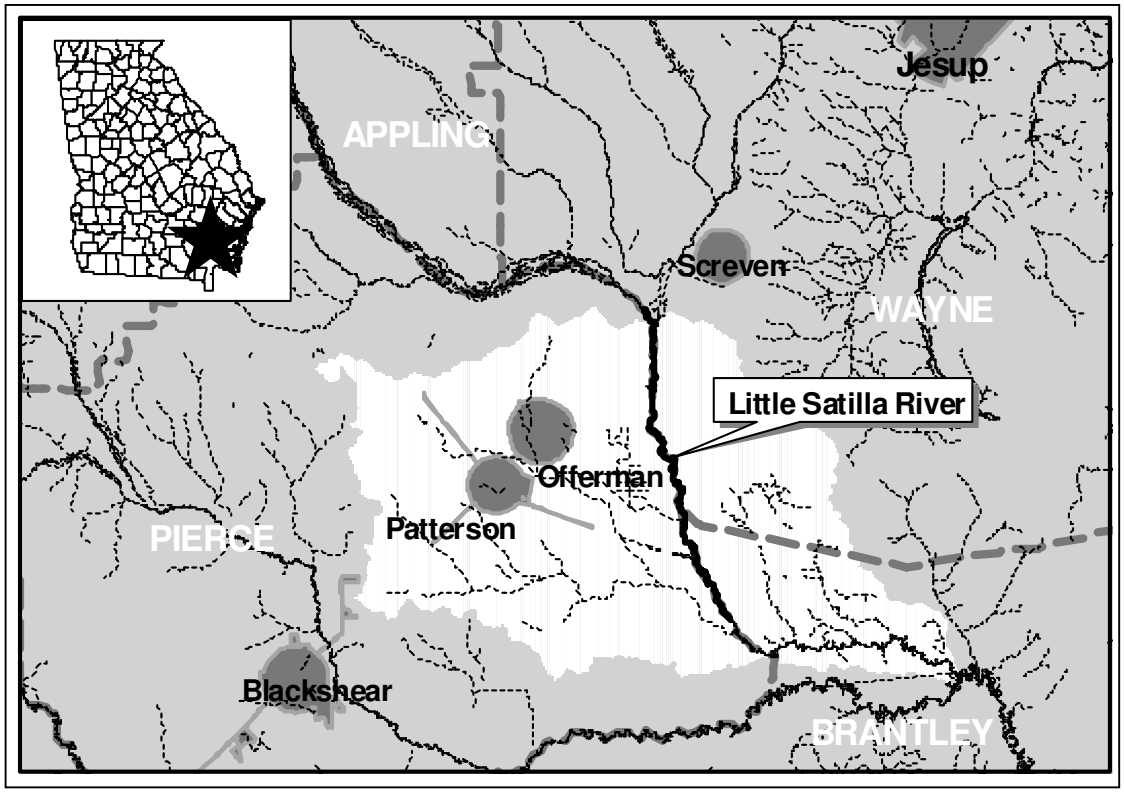

Figure 1

Impaired Waterbody*	Impaired Stream Location	Impairment
1.Little Satilla River	Big Satilla Creek to Sixty Foot Branch	Fecal Coliform (FC) Dissolved Oxygen (DO)

*These Waterbody Numbers are referenced throughout the Implementation Plan.

Action Plan for Little Satilla River Watershed

Watershed: Little Satilla River
HUC10: #0307020205

POLLUTANT:	SOURCE:	EFFECT:	WHAT CAN I DO? At Home: Community, School	WHAT CAN I DO? At Work: Business, Government
X Dissolved Oxygen (DO) X Fecal Coliform (FC) __ Sediment __ Metals __ Fish Consumption Guidelines (FCG) __ Other (Please List)	X Industrial X Urban X Agriculture X Forestry X Residential X Other (Please List) Wetlands Forest Terrain	X Habitat X Recreation X Drinking Water X Aesthetics __ Other (Please List)	**Septic Tank Management**: a. Prevent soil contamination. b. Prevent waste runoff. c. Routine and regular maintenance of septic system. **Pet Excrement Disposal**: a. Proper disposal of pet excrement. **Automotive Care**: a. Regular maintenance, check for leaks and the proper disposal of fluids at approved locations. **Lawn and Garden Care**: a. Proper yard maintenance. b. Proper disposal of organic and non-organic yard by-products. c. Proper precautions and correct usage of chemical and fertilizers. **Household Cleaners:** a. Proper disposal of household chemicals. b. Correct usage of chemicals. **Sewer management:** a. Routine visual inspections and report leaks if noted. **Spill/Discharge Control and Cleanup:** a. Control and cleanup spills according to instruction of manufacturer. **Miscellaneous Product Care:** a. Control and cleanup spills according to instruction of manufacturer. **Trash Pickup**: a. Visually inspect containers and report damage or leaks. b. Keep container secure at all times. c. Ensure that trash is picked up on a regular schedule.	**Automotive Care**: a. Regular maintenance of fleet vehicles, check for leaks and the proper disposal of fluids at approved locations. **Commercial Chemical Cleaners:** a. Proper disposal of commercial chemicals. b. Correct usage of chemicals. c. Inform all employees of MDSS. **Sewer management:** a. Routine visual inspections and report leaks if noted. **Spill/Discharge Control and Cleanup:** a. Control and cleanup spills according to instruction of manufacture. **Trash Pickup**: a. Visually inspect containers and report damage or leaks. b. Keep container secure at all times. c. Ensure that trash is picked up on a regular schedule. **Agriculture**: **Best Management Practices (BMPs)** a. Waste storage structure-Utilize and store waste. b. Filter Strips-Reduce soil erosion, filter runoff and provide wildlife habitat. c. Nutrient Management-Prevent over-application of nutrients, protect against soil contamination. **Forestry**: **Best Management Practices (BMPs)** a. Streamside Management Zones (SMZS). b. Road building-Prevents soil erosion. **Manure and Waste: Best Management Practices (BMPs)** a..Use conservation practices that minimize runoff and erosion on land where waste is applied. b. Do not allow lagoons to overflow and collectrunoff from concentrated animals operation for later land application. c. Adapt new technology that is environmentally friendly. **Industrial/Residential/Urban Storm Water Pollution Plan:** Ensure that all pollution prevent plans for storm water are enforced and observed by the company, Follow all EPD and EPA guidelines to reduce the amount of pollutants that enter waterways by stormwater runoff.

Watershed: Little Satilla River
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INFORMATION/EDUCATION/OUTREACH ACTIVITIES

An education/outreach component will be used to enhance public understanding of and participation in implementing the TMDL Implementation Plan.
List of all previous and planned information/education/outreach activities.

Responsible Organization Or Entity	Description	Impacted Waterbodies*	Target Audience	Anticipated Dates (MM/YY)
Southeast Georgia Regional Development Center	Ordinance/Regulation Review for the City of Offerman, City of Patterson, Brantley County and Pierce County	1	Local Government Officials	12/2004
EPD Coastal District, Frank VanArsdale	Best Management Practices (BMPs) for Industry	1	Business Community	06/2004
EPD Coastal District, Frank VanArsdale	Best Management Practices (BMPs) for Water Quality	1	Business Community	06/2004
GFC, Stan Moore	Best Management Practices (BMPs) for Forestry	1	Forestry Industry	12/2003
NRCS (Seven Rivers RC&D), Luther Jones	Best Management Practices (BMPs) for Agricultural	1	Farming Industry	12/2003
Save Our Satilla, Gloria Taylor	Satilla River Basin Group	1	Individuals living in the Satilla River Basin	Ongoing
Adopt-A-Stream	Will assist Al Browning in the introduction of the Adopt-A-Stream program into Pierce County. Mr. Al Browning is an Ecology teacher at Berrien County High School. He can be reached at (229) 686-7428. (Brantley County Has an Adopt-A-Stream Program)	1	Citizens	6/2003
Southeast Georgia Regional Development Center (RDC), DNR/EPD	Southeast Georgia RDC is assisting local governments with a Water Committee. The Committee has been operational for 9 months. One project that the committee would like to undertake is an educational video tape for Residential and Urban BMPs. The committee believes that the key to quality water is behavior modification through education. This will be collaborative effort between DNR/EPD, Southeast Georgia RDC, Water Committee and Local Governments.	1	Local Governments and Citizens	12/2004
Southeast Georgia RDC	Southeast Georgia RDC with the help of 7 Rivers RC&D, will assist the City of Offerman, City of Patterson, Brantley, and Pierce County with a 319(h) grant. The grant will be for the delineation of failing septic systems.	1	Citizens	12/2004

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STAKEHOLDERS

EPD encourages public involvement and the active participation of stakeholders in the process of improving water quality. Stakeholders can provide valuable information and data regarding their community and the impaired water bodies and can provide insight and/or implement management measures.

List of local governments, agricultural organizations or significant landholders, commercial forestry organizations, businesses and industries, and local organizations including environmental groups and individuals with a major interest in this watershed.

Name/Organization	Address	City	State	Zip	Phone	E-Mail
Troy Mattox, Chairman Pierce County Board of Commissioners	P.O. Box 679	Blackshear	GA	31516	(912) 449-2022	
Bobby Crews, Mayor City of Patterson	P.O. Box 434	Patterson	GA	31557	(912) 647-5776	
Brenda Denison, Mayor City of Offerman	P.O. Drawer 160	Offerman	GA	31556	(912) 647-1944	
Harry Riggins, Chairman Brantley County Board of Commissioners	P.O. Box 398	Nahunta	GA	31553	(912) 642-5256	
Plum Creek Timber, Robert Hicks, Superintendent, Southern Region	161 North Macon Street	Jesup	GA	31545	(912) 588-9798	
Carlton L. Windsor, Superintendent GA Region, Southern Forest Resources	P.O. Box 528	Jesup	GA	31598	(912) 530-8471	
NRCS/Seven Rivers Resource Conservation and Development Council, Luther Jones	239 N.E. Park Avenue	Baxley	GA	31513	(912) 367-7679	
Walter James, Natural Resources Conservation Services	601 Tebeau St.	Waycross	GA	31501	(912) 285-5975	N/A
Glynn McAllister, Rayonier	P.O. Box 2496	Douglas	GA	31534	(912) 383-8305	Glynn.mcallister@rayonier.com
Bill Wikoff, International Paper	6508 New Jesup HWY	Brunswick	GA	31523	(912) 265-1378	Bill.wikoff@ipaper.com
Fred Carpenter, SEGa RDC	1725 South Georgia Parkway, West	Waycross	GA	31503	(912) 285-6097	fecsegardc@accessatc.net
Will Varn & George Varn, Varn Companies	P.O. Box 128	Hoboken	GA	31542	(912) 458-2187	

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WATER BODIES/STREAMS COVERED IN THIS PLAN

These impaired streams are located in the same sub-basin identified by a HUC10 code. Most of the information contained in this section comes from the 303(d) list and has been completed by employees of the EPD Water Protection Branch. Data that placed the streams on the 303(d) list will be provided upon request.

Waterbody Name #1	Location	Miles/Area Impacted	Use Classification	Partially Supporting/ Not Supporting (PS/NS)
Little Satilla River	Big Satilla Creek to Sixty Foot Branch	10 miles	Fishing	PS
Primary County	**Secondary County**	**Second RDC**		**Source (Point/ Nonpoint)**
Pierce	Brantley, Wayne	Heart of Georgia/Altamaha RDC		Nonpoint

Pollutants	Water Quality Standards	Required Load Reduction	TMDL ID	Date TMDL Established
FC	1,000 per 100 ml (geometric mean Nov-April) and 200 per 100 ml (geometric mean May-Oct)	20%		June 2000
Contributing to DO	DO: 5 mg/L (daily)-4 mg/L (minimum) Natural Water Quality Standard DO: 5 mg/L (minimum)	Nonpoint: 12% TOC, TN, TP		December 2001

TOC=Total Organic Carbon (lb/yr), TN=Total Nitrogen (lb/yr), TP=Total Phosphorus (lb/yr)

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POLLUTANT SOURCES    

It is important to recognize the potential source(s) causing water quality impairment. Each source must be controlled to comply with target TMDL/Load Allocations for each pollutant. Included is a description of how the sources contribute to the impairment and the waterbody that is impaired.

List of major nonpoint source categories and sub-categories or individual sources (Urban Runoff, Agriculture, Forestry, Municipal Sewage Treatment Plant)

Pollutant	Sources of Pollutants	Description of Contribution To Impairment	Impacted Waterbodies*
DO/FC	City of Patterson Water Reclamation Center (NPDES GA0037206)	Wastewater discharge and possible leakage.	1
DO	Chemical/Fertilizer Applications, Silvicultural and Farming application of chemicals by aerial and broadcast means.	Chemical/Fertilizer (Nitrates and Phosphates) runoff increases the natural eutrophication rates in streams and creeks, and contributes to impaired DO by producing a carbonaceous chemical reacting with O^2.	1
DO	Organic Materials from Residential, Agricultural and Silvicultural Developments and Operations.	Runoff from residential yards, city and county mowing operations, hay fields, row crop production, leaves, branches and chipping materials that are not properly secured or disposed are washed away into nearby drainage systems and/or waterways.	1
DO	Lateral Leaf Litter	Decrease in Oxygen due to decomposition of organic materials.	1
DO	Wetlands	Wetland areas often contribute to high organic (leaf litterfall, decomposing plants) loading, slow flows (due to minimum topographical relief) and elevated temperatures in a surface water system that result in conditions where the dissolved oxygen is naturally lower and cannot meet the numeric criteria without reductions in the natural nutrient and carbon loads. Usually reduction in natural forest or wetlands contributions is not feasible, practicable or desirable through conventional best management practices.	1
DO/FC	Uncovered manure piles	Introduced into the waterway by the following methods: (1) Wind, and (2) runoff due to the introduction of water onto the pile. These nutrient enrich materials are then introduced into the waterway by the above means and aerobic microorganisms are needed to further breakdown the materials lending to decreased oxygen amounts in the waterway.	1
DO/FC	Access to waterways by livestock	Manure, feed and other materials are either transported on hooves, introduced into the stream by drinking livestock defecation, and/or feed is introduced into the waterway by runoff due to well traveled paths.	1
DO/FC	Manure from livestock operations	Runoffs from livestock feedlots are introduced into the waterway by rainfall or feedlot maintenance operations.	1

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Pollutant	Sources of Pollutants	Description of Contribution To Impairment	Impacted Waterbodies*
DO	Sediments	Sediments slow the rate of flow and increase the temperature of the water, depleting the amount of available oxygen through mechanical alteration of the waterway.	1
DO/FC	Urban Development	Unchecked runoff through storm water sewers: (1) Discharges of sanitary waste and (2) Improper disposal of waste materials.	1
DO	Land Disturbing Activities: (1) Construction Sites, (2) Infrastructure Development and Maintenance	Uncheck runoff from construction sites: (1) Leaking portable waste containers, (2) Improperly disposed waste materials, and (3) Introduction of sediments into waterways. (Sediments change the mechanics of the waterway by reducing flow rate and increasing water temperatures)	1
DO	Laundry Care Products	Detergents are emptied into septic systems, onto surface, or deposited into unapproved drainage/septic systems. During periods of precipitation, these chemicals are washed into nearby drainage systems and/or waterways.	1
DO/FC	Spill/Discharges of Raw Sewage	Spillage, unauthorized discharges, and cleansing of contaminated waste vehicles. These untreated materials are left on the surface to be introduced into the drainage system or waterway by precipitation or during the cleansing of equipment or collection apparatuses or containers.	1
DO	Improper Methods of Trash Collection and Disposal	Spillage and incorrect disposal techniques place substances on surfaces to be washed into waterway during precipitation.	1
DO	Collection and Disposal of Petroleum Products and Materials related to the repair of Gasoline and Diesel Equipment.	Fluids and materials associated with mechanical repairs and chemical absorbent materials that are not properly disposed of are left on surfaces to be washed into drainage system or waterways.	1
DO/FC	Leaking Septic Systems	Effluent leakage due to overflowing sewage systems and leaking collection lines.	1
DO	Manufacturing/Industrial Discharges	Thermal discharges raise the temperature of water, lowering its oxygen content.	1
DO/FC	Pet Excrement	Pet excrement is deposited on the ground in residential, urban and rural areas. During routine lawn maintenance (watering) or during periods of precipitation the excrement is washed away into nearby drainage system and/or waterways.	1
DO	Residential, Agricultural and Silvicultural Chemical/Fertilizer applications	Chemical/Fertilizer runoff increases the natural eutrophication rates in streams and cheeks, and contributes to DO by producing a carbonaceous chemical reacting with 0^2.	1
DO/FC	Leaking Septic Systems	Effluent leakage due to overflowing sewage systems and leaking collection lines.	1
DO/FC	Rural Development	Unchecked runoff through stormwater sewers: (1) Discharges of sanitary waste and (2) Improper disposal of waste materials.	1

Pollutant	Sources of Pollutants	Description of Contribution To Impairment	Impacted Waterbodies*
DO	Organic Materials From Lawns, City and County Right-of-Ways	Yard trimmings, leaves, branches and chipping materials that are not properly secured or disposed are washed away into nearby drainage systems and/or waterways.	1
DO	Automotive Product Care	Fluids, materials associated with auto repairs and chemical absorbent materials that are not properly disposed of are placed on surfaces to be washed into drainage system or dumped illegally into drainage systems.	1
DO	Organic Materials from Agricultural and Silvicultural Developments and Operations	Runoff from hay fields, row crop production, leaves, branches and chipping materials that are not properly secured or disposed are washed away into nearby drainage systems and/or waterways.	1
DO	Direct Leaf Litter	Direct introduction of leafs falling into waterways from overhanging branches, limbs and trees. These leaves settle at the bottom and require further breakdown by aerobic microorganisms.	1
DO	Industrial, Residential, and Urban Storm Water Runoff	Storm water runoff is part of a natural hydrologic process. However, human activities, particularly urbanization and associated industrial activities, can alter natural drainage patterns and add pollutants to rivers, and streams. Impact is a decline in fish and restrictions on swimming.	1
DO	Forested Woodlands	Heavily forested and wetlands areas often contribute to high organic (leaf litterfall, decomposing plants) loading and slow flows (due to minimum topographic relief) in a surface water system that result in conditions where the dissolved oxygen is naturally lower and cannot meet the numeric criteria without reductions in the natural nutrient and carbon loads. Usually reduction in natural forest or wetlands contributions is not feasible, practicable or desirable through conventional best management practices.	1
DO/FC	Feedlot Operations	Animals are confirmed in large groups in limit space. Large amounts of animals waste are produced. Maintenance, daily cleansing of feedlot, occurs daily to eliminate health problems. Pollutant may enter waterway either by runoff from overflowing lagoons or by runoff from piled manure that is left uncovered.	1

MANAGEMENT MEASURES, MEASURABLE MILESTONES AND SCHEDULE 

(Reduction in the measured amount of FC and Pollutants that contribute to impaired DO in the impacted waterway)

The following table lists management measures that have been or will be implemented to achieve water quality standards and the load reductions established in the TMDL. The management measures, including regulatory or voluntary actions or other controls by governments or individuals, specifically apply to the pollutant and the waterbody for which the TMDL was written. A description is provided of how these management measures are/will be accomplished through reliable and effective delivery mechanisms, and how these management measures are/will help achieve the target TMDL. Included is the source of the pollutant, anticipated/past effectiveness of the management measure (very effective, somewhat effective, not effective), the current status (i.e. enforced, in-progress, planning), and measurable milestones and schedule. Milestones are used to measure progress in attaining water quality standards and to determine whether management measures are being implemented.

Regulation/Ordinance or Management Measure	Responsible Government, Organization or Entity	Description	Enacted/ Projected Date	Status	Regulatory/ Voluntary
NPDES Permit	Georgia Environmental Protection Division (EPD)	City of Patterson Water Reclamation Center	Permit Issued: 12/1997	Enforced	Regulatory

Pollutant(s) Affected	Sources of Pollutant(s)	Impacted Waterbodies*	Anticipated or Past Effectiveness
Dissolved Oxygen/ Fecal Coliform	Water discharge and possible leakage.	1	Effective

Measurable Milestones	Schedule		Comments
	Start	End	
Refer to Permit GA0037206	12/08/97	12/07/02	N/A

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Regulation/Ordinance or Management Measure	Responsible Government, Organization or Entity	Description	Enacted/ Projected Date	Status	Regulatory/ Voluntary
Georgia Water Quality Control Act Georgia Groundwater Use Act Georgia Erosion & Sedimentation Act Georgia Comprehensive Planning Act Georgia River Basin Management Planning Act	Georgia DNR EPD	Laws authorizing Georgia EPD to control water pollution, eliminate phosphate detergents and regulate sludge disposal; to require permits for agricultural ground and surface water withdrawals; to prohibit siltation of state waters by land disturbing activities and require undisturbed buffers along state waters; to require land-use plans that include controls to protect drinking water supply sources and wetlands; to require river basin management plans on a rotation schedule for all major river basins.	11/64	Enforced	Regulatory

Pollutant(s) Affected	Sources of Pollutant(s)	Impacted Waterbodies*	Anticipated or Past Effectiveness
Dissolved Oxygen/ Fecal Coliform	Ungoverned discharges from industrial and non-industrial entities.	1	Effective

Measurable Milestones	Schedule		Comments
	Start	End	
Compliance with regulations to control water pollution including identification and implementation of Best Management Practices	11/64	Continuous	N/A

Regulation/Ordinance or Management Measure	Responsible Government, Organization or Entity	Description	Enacted/ Projected Date	Status	Regulatory/ Voluntary
CAFO Regulations Land Application System Permits	Georgia DNR EPD General NPDES Permits	Permitting requirements for Concentrated Animal Feeding Operations and Land Application Systems with liquid manure	2002	Pending	Regulatory

Pollutant(s) Affected	Sources of Pollutant(s)	Impacted Waterbodies*	Anticipated or Past Effectiveness
Dissolved Oxygen/ Fecal Coliform	Containment lagoons, LAS sprays	1	Effective

Measurable Milestones	Schedule		Comments
	Start	End	
Compliance with regulations to control water pollution including identification and implementation of Best Management Practices	2002	Continuous	Comprehensive Nutrient Management Plan

Regulation/Ordinance or Management Measure	Responsible Government, Organization or Entity	Description	Enacted/ Projected Date	Status	Regulatory/ Voluntary
Domesticated and Commercial Animal/Livestock Excrement Disposal and Management Program	Individual	Encourages individuals to correctly dispose and manage excrement from animals/livestock operations.	2006	Planning	Voluntary

Pollutant(s) Affected	Sources of Pollutant(s)	Impacted Waterbodies*	Anticipated or Past Effectiveness
DO/FC	Domesticated animals and Commercial Livestock Production	1	Effective if BMP is implemented

Measurable Milestones	Schedule		Comments
	Start	End	
Reduction in the measurable amount of pollutants contributing to impaired DO and FC loading in impacted waterways.	2006	Continuous	University of Georgia Extension Agent must provide educational opportunities if BMP is to become effective.

Regulation/Ordinance or Management Measure	Responsible Government, Organization or Entity	Description	Enacted/ Projected Date	Status	Regulatory/ Voluntary
Herbicide and Pesticide Poison Care Disposal and Management Program	Individual	Encourages individuals to properly dispose of dangerous chemicals	2005	Planning	Voluntary

Pollutant(s) Affected	Sources of Pollutant(s)	Impacted Waterbodies*	Anticipated or Past Effectiveness
DO	Non-commercial and commercial application of Herbicides and Pesticides.	1	Effective if BMP is implemented

Measurable Milestones	Schedule		Comments
	Start	End	
Reduction in the measurable amount of pollutants that contribute to impaired DO in impacted waterways.	2005	Continuous	University of Georgia Extension Agent must provide educational opportunities if BMP is to become effective.

Regulation/Ordinance or Management Measure	Responsible Government, Organization or Entity	Description	Enacted/ Projected Date	Status	Regulatory/ Voluntary
Stream Management Zones	Georgia Forestry Commission	Encourages Forest Production Operator to Plan and Implement strategies to prevent sediments, fluids and nutrients from entering waterway.	1993	In-Progress	Voluntary

Pollutant(s) Affected	Sources of Pollutant(s)	Impacted Waterbodies*	Anticipated or Past Effectiveness
DO	Fluids, excessive nutrients and organic materials	1	Effective

Measurable Milestones	Schedule		Comments
	Start	End	
Reduction in the measurable amount of pollutants that contribute to impaired DO in impacted waterways.	1993	Continuous	N/A

Regulation/Ordinance or Management Measure	Responsible Government, Organization or Entity	Description	Enacted/ Projected Date	Status	Regulatory/ Voluntary
Septic Tank Management Program	Southeast Georgia RDC, 7 Rivers RC&D and local governments in watershed.	319 grant to delineate failing septic systems	2004	Planning	Voluntary

Pollutant(s) Affected	Sources of Pollutant(s)	Impacted Waterbodies*	Anticipated or Past Effectiveness
DO/FC	Effluent leakage from collection lines	1	Effective if BMP is implemented

Measurable Milestones	Schedule Start	Schedule End	Comments
Reduction in the measurable amount of pollutants contributing to impaired DO and FC loading in impacted waterways.	2004	Continuous	Southeast Georgia RDC will work with 7 Rivers RC&D, City of Patterson, Pierce County, City of Offerman, and Brantley County to apply for 319(h) grants to delineate and repair or replace malfunctioning septic systems.

Regulation/Ordinance or Management Measure	Responsible Government, Organization or Entity	Description	Enacted/ Projected Date	Status	Regulatory/ Voluntary
Agricultural Best Management Practices (BMPs)	NRCS (7 Rivers RC&D) and University of Georgia Extension Service	Leads effort in agricultural water quality program, develops agricultural BMPs educational and monitoring efforts.	1987	In-Progress	Voluntary

Pollutant(s) Affected	Sources of Pollutant(s)	Waterbodies* Impacted	Anticipated or Past Effectiveness
DO & FC	Animal facility runoff, pesticide/herbicide management, irrigation runoff management and manure applications.	1	Effective

Measurable Milestones	Schedule Start	Schedule End	Comments
Reduction in the measurable amount of pollutants contributing to impaired DO and FC loading in impacted waterways.	1987	Continuous	NRCS and University of Georgia Extension Agent must provide continuous opportunities if BMP is to remain effective.

Regulation/Ordinance or Management Measure	Responsible Government, Organization or Entity	Description	Enacted/ Projected Date	Status	Regulatory/ Voluntary
Nutrient Management Program	NRCS (7 Rivers RC&D) and University of Georgia Extension Service	Encourages and educates farmers on the correct usage and amount of fertilizers to maintain high yield and to lessen the impacts of nitrates and phosphates to waterways. Reduces NPS of pollution.	1991	In-Progress	Voluntary

Pollutant(s) Affected	Sources of Pollutant(s)	Waterbodies* Impacted	Anticipated or Past Effectiveness
DO & FC	Natural and manmade fertilizers	1	Effective

Measurable Milestones	Schedule		Comments
	Start	End	
Reduction in the measurable amount of pollutants contributing to impaired DO and FC loading in impacted waterways.	1991	Continuous	NRCS and University of Georgia Extension Agent must provide continuous opportunities if BMP is to remain effective.

Regulation/Ordinance or Management Measure	Responsible Government, Organization or Entity	Description	Enacted/ Projected Date	Status	Regulatory/ Voluntary
Forestry Best Management Practices (BMPs)	Georgia Forestry Commission	BMP categories include planning for water quality, SMZs, road location, construction, stream crossing and maintenance, timber harvesting, site preparation/reforestation and management/protection.	1999	In-progress	Voluntary

Pollutant(s) Affected	Sources of Pollutant(s)	Impacted Waterbodies*	Anticipated or Past Effectiveness
DO	Forestry	1	Effective

Measurable Milestones	Schedule Start	Schedule End	Comments
Reduction in the measurable amount of pollutants that contribute to impaired DO in impacted waterways.	1999	Continuous	Georgia Forestry Commission must continuously provide education opportunities for foresters if BMPs are to remain effective.

Regulation/Ordinance or Management Measure	Responsible Government, Organization or Entity	Description	Enacted/ Projected Date	Status	Regulatory/ Voluntary
Power Equipment, Commercial, Industrial, and Personal Product Care Disposal and Management Program	Individual	Encourages individuals to properly dispose of materials that are related to the repair and routine maintenance of power equipment.	2002	On-going	Voluntary

Pollutant(s) Affected	Sources of Pollutant(s)	Impacted Waterbodies*	Anticipated or Past Effectiveness
DO	Equipment cleansing, mechanical repairs and maintenance shops, and individual home auto maintenance and/or repair.	1	Effective

Measurable Milestones	Schedule Start	Schedule End	Comments
Reduction in the measurable amount of pollutants that contribute to impaired DO in impacted waterways.	2002	Continuous	Local auto part houses encourage and provide opportunities for individual to dispose of fluids and materials that can't be disposed of by normal fluid or trash disposal methods.

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Regulation/Ordinance or Management Measure	Responsible Government, Organization or Entity	Description	Enacted/ Projected Date	Status	Regulatory/ Voluntary
House Cleaner Disposal and Management Program	Individual	Encourages individuals to properly dispose of household chemicals	2005	Planned	Voluntary

Pollutant(s) Affected	Sources of Pollutant(s)	Impacted Waterbodies*	Anticipated or Past Effectiveness
DO	Household chemicals	1	Effective if program is implemented

Measurable Milestones	Schedule		Comments
	Start	End	
Reduction in the measurable amount of pollutants that contribute to impaired DO in impacted waterways.	2005	Continuous	Waste Disposal Company (Southland Waste Inc.) must encourage individuals to properly secure and dispose of household chemicals

Regulation/Ordinance or Management Measure	Responsible Government, Organization or Entity	Description	Enacted/ Projected Date	Status	Regulatory/ Voluntary
Sewer Management Program	Individual	Encourages individuals to routinely inspect sewage system on property.	12/2004	Planning	Voluntary

Pollutant(s) Affected	Sources of Pollutant(s)	Impacted Waterbodies*	Anticipated or Past Effectiveness
DO & FC	Leaking Sewage Lines	1	Effective if BMP is implemented

Measurable Milestones	Schedule		Comments
	Start	End	
Reduction in the measurable amount of pollutants that contribute to impaired Dissolved Oxygen and Fecal Coliform loading in the impacted waterway.	12/2004	Continuous	University of Georgia Extension Agent must provide educational opportunities if BMP is to become effective.

Regulation/Ordinance or Management Measure	Responsible Government, Organization or Entity	Description	Enacted/ Projected Date	Status	Regulatory/ Voluntary
Spill/Discharge Control and Cleanup Program	Individual	Encourages individuals to cleanup or control and to report spills.	12/2004	Planning	Voluntary

Pollutant(s) Affected	Sources of Pollutant(s)	Impacted Waterbodies*	Anticipated or Past Effectiveness
DO	Surface Spills or Uncontrolled Discharges	1	Effective is BMP is implemented

Measurable Milestones	Schedule		Comments
	Start	End	
Reduction in the measurable amount of pollutants that contribute to impaired DO in the impacted waterways.	12/2004	Continuous	University of Georgia Extension Agent must provide educational opportunities if BMP is to become effective.

Regulation/Ordinance or Management Measure	Responsible Government, Organization or Entity	Description	Enacted/ Projected Date	Status	Regulatory/ Voluntary
BMP Monitoring	GFC	Within watershed will conduct monthly aerial BMP evaluations to identify recent forestry practices and conduct BMP audit	01/2003	Current	Voluntary

Pollutant(s) Affected	Sources of Pollutant(s)	Impacted Waterbodies*	Anticipated or Past Effectiveness
DO	Silviculture Activities	1	Effective if BMP is implemented

Measurable Milestones	Schedule		Comments
	Start	End	
Reduction in the measurable amount of pollutants that contribute to impaired Dissolved Oxygen in the impacted waterways.	01/2003	Continuous	N/A

Regulation/Ordinance or Management Measure	Responsible Government, Organization or Entity	Description	Enacted/ Projected Date	Status	Regulatory/ Voluntary
Storm Water Pollution Prevention Plan (SWPPP)	Southeast Georgia RDC, Coastal Conservation Resources, and NRCS	Storm water runoff is part of a natural hydrologic process. However, human activities, particularly urbanization and associated industrial activities, can alter natural drainage patterns and add pollutants to rivers, and streams. Impact is a decline in fish and restrictions on swimming.	01/2003	Planning	Voluntary

Pollutant(s) Affected	Sources of Pollutant(s)	Impacted Waterbodies*	Anticipated or Past Effectiveness
DO	Storm Water Run Off	1	Effective if BMP is implemented

Measurable Milestones	Schedule		Comments
	Start	End	
Reduction in the measurable amount of pollutants that contribute to impaired DO in the impacted waterways.	01/2003	Continuous	Southeast Georgia RDC will, with the assistance of Coastal Conservation Resources, and NRCS, seek funds to assist Brantley and Pierce County in the development of Storm Water Pollution Prevention Plan (SWPPP)

POTENTIAL FUNDING SOURCES

The identification and discussion of dedicated funding is important in determining the economic feasibility of the above-mentioned management measures.

Funding Source	Responsible Authority	Status	Anticipated Funding Amount	Impacted Waterbodies*
Section 319 (h) of the Clean Water Act	EPA/State of Georgia	Must Apply	N/A	1
Greenspace Funds	Georgia Department of Natural Resources	Funded	$80,000	1
Small Business Technical Assistance Program	Georgia Department of Natural Resources (EPD)	Must Request Assistance	Undetermined-Free Technical Assistance	1
Environmental Quality Incentive Program (EQIP)	NRCS	Must Apply	N/A	1
Unified Watershed Assessment program	NRCS	Must Apply	N/A	1
Conservation Reserve Enhancement Plan	NRCS	Must Apply	N/A	1
Section 604(b) Grants	Georgia Department of Natural Resources	Must Apply	N/A	1

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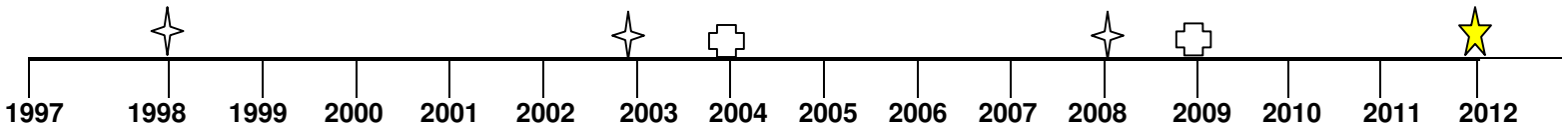
PROJECTED ATTAINMENT DATE

The projected date to attain and maintain water quality standards in this watershed is 10 years from acceptance of the TMDL Implementation Plan by EPD.



EPD Monitoring
Evaluate TMDL & Attainment Date
Project Attainment

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MONITORING PLAN

The purpose of this monitoring plan is to determine the effectiveness of the target TMDL and the management measures being implemented to meet water quality standards. List of previous, current or planned /proposed sampling activities or other surveys. Monitoring data that placed stream on 303(d) list will be provided if requested.

Name of Regulation/Ordinance or Management Measure	Organization	Impacted Waterbodies*	Pollutants	Purpose/Description	Time Frame		Status (Previous, Current, Proposed)
					Start	End	
TMDL Evaluation/Monitoring Data	GA EPD/USGS	1	DO/FC	TMDL Evaluation /Monitoring data for Georgia 305(b)/303(d) List	1998	1998	Previous
Water Quality Testing	GA EPD	1	DO/FC	Water Quality Testing/Assessment of water quality.	2003	2003	Proposed
TMDL Evaluation	GA EPD/USGS	1	DO/FC	Monitoring data for GA 305(b)/303(d) list	1998	1998	Previous
BMP Monitoring	GFC	1	DO	Within watershed will conduct monthly aerial BMP evaluations to identify recent forestry practices and conduct BMP.	01/2003	Continuous	Current
Comprehensive Nutrient Management Plan	GA DNR EPD	1	DO	Component of general CAFO/LAS permits to identify and describe practices that are to be implemented to assure compliance with the limitations and conditions of the permit.	03/2002	03/2007	Current
Storm Water Pollution Prevention Plan	Southeast Georgia RDC, NRCS and Coastal Conservation Resources	1	DO/FC	Southeast Georgia RDC will, with the assistance of Coastal Conservation Resources and NRCS, seek funds to assist Brantley and Pierce County in the development of Storm Water Pollution Prevention Plan (SWPPP)	01/2003	01/2004	Proposed
Water Quality Testing	City of Patterson	1	DO/FC	Water Quality Testing/Assessment of water quality.	1995	Continuous	Current

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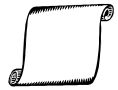
CRITERIA TO DETERMINE WHETHER SUBSTANTIAL PROGRESS IS BEING MADE



The following set of criteria will be used to determine whether any substantial progress is being made towards reducing pollutants in impaired waterbodies and attaining water quality standards. Discussion on each criterion is recorded in the space provided. Additional relevant criteria are presented in Comments.

- Percent of concentration or load change (monitoring program) _____

- Categorical change in classification of the stream (delisting the stream is the goal) _____

If monitoring results show that it is unlikely that the TMDL will be adequate to meet water quality standards, revision of the TMDL may be necessary.

- Regulatory controls or activities installed (ordinances, laws) _____

- Best management practices installed (agricultural, forestry, urban) _____

COMMENTS

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Environmental Protection Division of the Department of Natural Resources, State of Georgia.

TOGETHER WE CAN MAKE A DIFFERENCE!

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Department Use Only:

Implementation Plan	Impaired Waterbodies			
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Action Plans				
Education/Outreach Activities				
Stakeholders				
Pollutant Sources Identified				
Description of Management Measures				
Measurable Milestones and Schedule				
Potential Funding Sources				
Monitoring Plan				
Criteria To Determine Whether Substantial Progress Is Being Made				
Supporting Documents				